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EXAMINER

BERMAN, SUSAN W

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/940,748

Applicant(s)

BRADFORD ET AL.

Examiner

Susan W Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Terminal Disclaimer

The terminal disclaimer filed on 05-06-2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of copending Application Nos.

09/941,118, 09/941,283 and 09/941,295 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

Lahrman et al: It is agreed that Lahrman et al teach applying two separate coating compositions, one thermally cured and one radiation cured. Applicant also discloses and claims multiplayer coatings obtained by curing different coating compositions, including a radiation curable coating composition. The relevant disclosure of Lahrman et al of coating compositions comprising components that are radiation curable and thermally curable comprising components corresponding to those instantly claimed is set forth in the rejection herein. Applicant's argument that Lahrman et al do not provide motivation to include a non-radiation curable binder. The motivation is found within the reference. Binders not susceptible to radiation curing and providing a non-radiation-induced curing reaction through functional groups, such as hydroxyl, oxirane or isocyanate, may also be added (column 6, lines 43-48). When such binders are used crosslinking agents such as optionally blocked polyisocyanates are added (column 6, lines 48-54). Binders that are not susceptible to radiation-induced curing may be added to the radiation curable clear lacquers to permit an additional curing reaction by reaction with the functional groups (column 6, line 65, to column 7, line 5). See column 5, line 4, to column 7, line 11.

DE '141: Applicant argues that DE '141 does not teach a crosslinking agent free of radiation curable functional groups. This argument is not persuasive. DE '141 clearly discloses binders and crosslinking agents, including blocked di and polyisocyanates (pages 18-22 as thermally curable component (a7)). Applicant argues that DE '141 teaches only that the ratio of isocyanate reactive groups

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(a12) in component a1 to isocyanate groups (a22) in (a2) should be considered and not the ratio of isocyanate reactive groups in (a1) to isocyanate groups in (a7). However, it is the examiner's position that one skilled in the art at the time of the invention would have immediately envisioned controlling the ratio of isocyanate reactive groups to isocyanate groups in the crosslinking agent as well because the ratio of reactive groups must be considered in order to achieve crosslinking by the crosslinking agent.

Furthermore, it is not agreed that DE '141 teaches "only" that the ratio of isocyanate reactive groups (a12) in component a1 to isocyanate groups (a22) in (a2) should be considered. It is the examiner's position that the ratio taught is relevant in compositions containing the basic components (a1) and (a2) disclosed by DE '141 since the components (a3) to (a7) are optional.

The rejection of claims over Sirkoch et al is withdrawn in favor of closer art.

The rejection of claims 1-25 as being unpatentable over DE Patent 00 333 (translation supplied by applicant) is withdrawn in response to applicant's statement that DE '333 is not prior art because 03-21-2001 is the filing date of DE application 10113884.9.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14 and 17-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 14 and 17-19 recite a method of making a coated substrate but fail to set forth how the coating is obtained from the composition applied to the substrate. Merely applying a composition to a substrate does not provide a permanent coating. A method step for curing the uncured composition must be set forth to provide a "coated substrate". The claim language in claims 20, 21, 22 and 23 is confusing for the following reasons. In claim 20, it is not clear what applicant intends to add to the method of claim

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15. Claim 15 already includes applying a coating composition to a substrate and exposing the composition to UV radiation to provide a cured composition on the substrate (i.e., a coated substrate).

Does applicant intend to set forth a method of overcoating or topcoating by applying a second composition to the UV cured coated substrate and curing the second composition to provide a second coating on the substrate? It is not clear, in claim 21, what applicant intends to add to the method of claim

16. Claim 16 already includes applying a coating composition to a substrate and exposing the composition to UV radiation and heat to provide a cured composition on the substrate (i.e., a coated substrate). Does applicant intend to set forth a method of overcoating by applying a second composition to the coated substrate and curing the second composition to provide a second coating on the substrate?

With respect to claim 22, it is not clear how the coated substrate of claim 20 can be coated with a basecoat coating composition. How can a basecoat composition be applied after the substrate is coated by applying and curing a composition thereon? It is not clear, in claim 23, what applicant intends to add to the method of claim 20. Claim 20 already includes applying a coating composition to a substrate and exposing the composition to UV radiation and heat to provide a cured composition on the substrate (i.e., a coated substrate). Does applicant intend to set forth a method of overcoating by applying a second clearcoat composition to the coated substrate and curing the second composition to provide a second clearcoating on the substrate over the coating composition of claim 1?

Applicant argues that the language is intended to distinguish between a "coated substrate" and "cured coated substrate". This argument is not persuasive because, as set forth above simply applying a composition to a substrate without curing the substrate will not result in a coating on the substrate. Curing is required to produce a coating, whether UV cured or otherwise. It is suggested that applicant add the limitation of claim 15 to claim 14.

Applicant argues that claims 20-23 set forth composite coatings containing multiple layers. As discussed above each coating composition must be cured to provide a "coating" on the substrate.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lahrman et al (5,425,970). Lahrman et al teach that the radiation curable binders in the disclosed compositions can contain further functional groups accessible to chemical crosslinking and that external crosslinking agents can be added. Patentees teach that thermal activation for crosslinking can be used with radiation curing subsequently or simultaneously (column 4, lines 36-42, and column 7, lines 51-65). Binders not susceptible to radiation curing and providing a non-radiation-induced curing reaction through functional groups, such as hydroxyl, oxirane or isocyanate, may also be added (column 6, lines 43-48). When such binders are used crosslinking agents such as optionally blocked polyisocyanates are added (column 6, lines 48-54). Binders that are not susceptible to radiation-induced curing may be added to the radiation curable clear lacquers to permit an additional curing reaction by reaction with the functional groups (column 6, line 65, to column 7, line 5). See column 5, line 4, to column 7, line 11. Lahrman et al disclose, in Example 6, a composition comprising a urethane acrylate containing hydroxyl functional groups corresponding to applicant's component (a1), acrylate-functional monomers and a polyisocyanate curing agent that is irradiated and then heated to provide a high gloss surface.

Lahrman et al teach compositions that may comprise components corresponding to each of (a1), (a2) and (a3) set forth in instant claim 1. Example 6 clearly shows a composition comprising a radiation curable urethane acrylate having hydroxyl functional groups in combination with a polyisocyanate and dual cure of the composition. Lahrman et al disclose employing a radiation curable prepolymer containing further isocyanate-reactive functional groups and selecting a polyisocyanate as the external

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crosslinking agent and including a non-radiation curable binder having functional groups reactive with the isocyanate groups. It would have been obvious to one skilled in the art at the time of the invention to provide a composition comprising components corresponding to instantly claimed (a1) and (a3) selected from the prepolymers and crosslinking agents taught by Lahrman et al because Lahrman et al specifically disclose such components as being suitable for use in the disclosed compositions. It would have been obvious to one skilled in the art at the time of the invention to include a non-radiation curable binder containing functional groups reactive with a polyisocyanate, as taught by Lahrman et al in column 6, lines 43, to column 7, line 5, in the composition of Example 6. A polyisocyanate is used as crosslinking agent in Example 6, thus providing motivation to one skilled in the art to employ a non-radiation curable binder containing isocyanate-reactive groups. Lahrman et al do not teach the instantly claimed ratio of NCO groups to isocyanate reactive groups. However, It would have been obvious to one skilled in the art at the time of the invention to determine the ratio required in order to obtain the extent of crosslinking desired for a particular application.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE Patent 99 141 (translation supplied by applicant). DE '141 discloses compositions for SMC and BMC coating comprising component (a1) corresponding to instantly claimed component (a1), component (a2) also corresponding to instantly claimed component (a1), and at least one component (a7) corresponding to instantly claimed component (a2) or (a3). The same tradenamed materials are employed in DE '141 as are disclosed in the instant specification. DE '141 clearly discloses binders and crosslinking agents, including blocked di and polyisocyanates (pages 18-22 as thermally curable component (a7)). DE '141 teaches that it is advantageous for component (a1) to contain at least one thermally curable component (a12) and that hydroxyl groups are particularly advantageous in combination with isocyanate groups (page 9, lines 3-13). DE '141 teaches that the complementary functional groups (a12) and (a22) are present in an

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equivalent ratio of OH/NCO in the range 0.5:1 to 2:1, thus encompassing the instantly claimed ratio of NCO groups to isocyanate reactive groups. The difference is that the ratio is provided by functional groups (a12) and (a22) rather than by functional groups (a12) and component (a7) disclosed by DE '141. The claim language "composition comprising" encompasses component (a2) disclosed by DE '141 and not set forth in the instant claims.

It would have been obvious to one skilled in the art to employ compositions comprising binders, such as polyols, and crosslinking agents, such as blocked di and polyisocyanates, as component (a7) within the compositions disclosed by DE '141 because DE '141 teaches adding component (a7) and that (a7) can be binders and/or crosslinking agents. One of ordinary skill in the art would have been motivated by taking advantage of the known functions of binders and crosslinking agents in coating compositions. DE '141 does not specifically disclose a ratio of NCO groups to the sum of isocyanate-reactive groups corresponding to (a12) and (a21) in the instant claims. However, the compositions disclosed would be expected to provide the ratio set forth in the instant claims in the absence of evidence to the contrary for the following reason. The compositions disclosed advantageously have a ratio of functional groups (a12), such as hydroxyl, and (a22), such as isocyanate, in the range 0.5:1 to 2:1 {NCO:OH of 1:0.5 to 1:2} and the addition of a component (a7) containing isocyanate groups would increase NCO:OH ratio 0.5:1 to >0.5:1 but less than 2:1. Alternatively, It would have been obvious to one skilled in the art at the time of the invention to determine the optimum ratio of isocyanate groups in crosslinking agent component (a7) to functional groups (a12) in (a1) and to functional groups in a thermally curable binder component (a7) required to obtain the desired degree of crosslinking in the cured product. , it is the examiner's position that one skilled in the art at the time of the invention would have immediately envisioned controlling the ratio of isocyanate reactive groups to isocyanate groups in the crosslinking agent as well because the ratio of reactive groups must be considered in order to achieve crosslinking by the crosslinking agent. With respect to claims 2-5, the ratios recited are also considered to be obvious within the skill of the ordinary

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person in the art, in the absence of evidence to the contrary. With respect to claims 7-10, DE '333 does not mention the polydispersity of component a7, however, It would have been obvious to one skilled in the art at the time of the invention to select thermally curable binder components having these features in order to avoid yellowing upon irradiation and to control the amount of crosslinking.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 703 308 0040. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703 308 2462.

The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.



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A handwritten signature in cursive script, reading "Susan Berman".

Susan W Berman

Primary Examiner

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SB

06-19-03